Amendments to the Claims

Please amend Claims 1, 7, 12, 13, 23 and 24 to read as follows.

1.   (Currently Amended)   An ink jet printing apparatus which forms an image on a print medium by moving a print head having an array of nozzles and the print medium relative to each other and at the same time ejecting ink droplets from the nozzles according to print data of the image to be printed, the ink jet printing apparatus comprising:

nozzle information generation means for generating nozzle information representing an ejection characteristic of each nozzle according to a result of measuring a landing state of each of dots formed by the ink droplets which are ejected from the nozzles of the print head onto the print medium by measuring the landing state corresponding to each of the nozzles;

estimation means for estimating, ~~based on the nozzle information generated by the nozzle information generation means and the print data, an effect that the ink droplet ejected from each nozzle has on the image to be formed;~~ for each nozzle of the plurality of nozzles based on the nozzle information, a degree of influence which affects the density of an image at a position of a dot to be formed by an ink droplet ejected from the nozzle, the degree of influence being affected by both the nozzle corresponding to the position of the dot to be formed and another nozzle in the neighborhood of the nozzle;

correction information generation means for generating correction

information to correct an ink ejection condition of each nozzle according to a result of

estimation by the estimation means; and

control means for controlling a driving of the nozzles according to the print

data and the correction information,

wherein the nozzle information generation means generates information

which represents nozzle ejection characteristics according to a result of measuring an

amount of deviation between an ideal landing position of the ink droplet ejected from each

of the nozzles of the print head onto the print medium and an actual landing position of the

ink droplet ejected from each of the nozzles of the print head onto the print medium, and

wherein the estimation means obtains the degree of influence which affects

the density of the image at the position of the dot by obtaining a dot area, present within a

target area, of the dot formed by an ink droplet ejected from a nozzle corresponding to a

predetermined position of the dot and a dot area, present within the target area, of the dot

formed by an ink droplet ejected from the other nozzle, based on an amount of deviation

corresponding to each of the plurality of nozzles.

Claim 2 (Canceled).

3.   (Previously Presented)   An ink jet printing apparatus according to claim 1, wherein the nozzle information generation means determines, as the nozzle information representing the ejection characteristic of each nozzle, an ink ejection enable/disable decision for each nozzle of the print head and a size and/or shape of an ink dot formed by each ink droplet landing on the print medium.

4.   (Previously Presented)   An ink jet printing apparatus according to claim 1, wherein the estimation means at least analyzes a component affecting a print density on the print medium.

5.   (Original) An ink jet printing apparatus according to claim 4, wherein the component affecting the print density is a range of print area to be printed by the ink dot and an area overrunning the range of print area.

6.   (Previously Presented)   An ink jet printing apparatus according to claim 1, wherein, in a process of forming an image, the correction information generation means generates, based on an estimated result from the estimation means, the correction information to correct the ink ejection conditions of nozzles unable to produce an ideal landing state.

7.   (Currently Amended)   An ink jet printing method which forms an image on a print medium by moving a print head having an array of nozzles and the print medium relative to each other and at the same time ejecting ink droplets from the nozzles according to print data of the image to be printed, the ink jet printing method comprising:

a nozzle information generation step for generating nozzle information representing an ejection characteristic of each nozzle according to a result of measuring a landing state of each of dots formed by the ink droplets which are ejected from the nozzles of the print head onto the print medium by measuring the landing state corresponding to each of the nozzles;

an estimation step for estimating, ~~based on the nozzle information generated by the nozzle information generation step and the print data, an effect that the ink droplet ejected from each nozzle has on the image to be formed;~~ for each nozzle of the plurality of nozzles based on the nozzle information, a degree of influence which affects the density of an image at a position of a dot to be formed by an ink droplet ejected from the nozzle, the degree of influence being affected by both the nozzle corresponding to the position of the dot to be formed and another nozzle in the neighborhood of the nozzle;

a correction information generation step for generating correction information to correct an ink ejection condition of each nozzle according to a result of estimation by the estimation step; and

a control step for controlling a driving of the nozzles according to the print data and the correction information,

wherein said nozzle information generation step generates information which represents nozzle ejection characteristics according to a result of measuring an amount of deviation between an ideal landing position of the ink droplet ejected from each of the nozzles of the print head onto the print medium and an actual landing position of the ink droplet ejected from each of the nozzles of the print head onto the print medium, and

wherein said estimation step obtains the degree of influence which affects the density of the image at the position of the dot by obtaining a dot area, present within a target area, of the dot formed by an ink droplet ejected from a nozzle corresponding to a predetermined position of the dot and a dot area, present within the target area, of the dot formed by an ink droplet ejected from the other nozzle, based on an amount of deviation corresponding to each of the plurality of nozzles.

Claim 8 (Canceled).

9.   (Previously Presented)   An ink jet printing method according to claim 7, wherein the nozzle information generation step determines, as the nozzle information representing the ejection characteristic of each nozzle, an ink ejection enable/disable decision for each nozzle of the print head and a size and/or shape of an ink dot formed by each ink droplet landing on the print medium.

10.   (Previously Presented)   An ink jet printing method according to claim 7, wherein the estimation step at least analyzes a component affecting a print density on the print medium.

11.   (Previously Presented)   An ink jet printing method according to claim 7, wherein, in a process of forming an image, the correction information generation step generates, based on an estimated result from the estimation step, the correction information to correct the ink ejection conditions of nozzles unable to produce an ideal landing state.

12.   (Currently Amended)   An ink jet printing apparatus which forms an image on a print medium by moving a print head having an array of nozzles and the print medium relative to each other and at the same time ejecting ink droplets from the nozzles according to print data of the image to be printed, the ink jet printing apparatus comprising:

deviation correction means for performing a dot deviation correction based on deviation data representing an amount of deviation, or a difference, between an actual landing position of an ink dot formed on the print medium by the ink droplet ejected from each nozzle and an ideal landing position of the ink dot; and

control means for selectively causing the deviation correction means to execute the dot deviation correction according to the amount of deviation,

wherein the amount of deviation is an amount which is obtained according to a result of measuring a landing state of each of the dots formed by the ink droplets ejected from nozzles of the print head onto the print medium by measuring the amount of deviation between the ideal landing position of the ink droplet ejected from each of the nozzles of the print head onto the print medium and the actual landing position of the ink droplet ejected from each of the nozzles of the print head onto the print medium, and

the deviation correction means performs the dot deviation correction by obtaining a dot area, present within a target area, of the dot formed by an ink droplet ejected from a nozzle corresponding to a predetermined position of the dot and a dot area, present within the target area, of the dot formed by an ink droplet ejected from another nozzle, based on an amount of deviation corresponding to each of the plurality of nozzles.

13.   (Currently Amended)   An ink jet printing apparatus which forms an image on a print medium by moving a print head having an array of nozzles and the print medium relative to each other and at the same time ejecting ink droplets from the nozzles according to print data of the image to be printed, the ink jet printing apparatus comprising:

grayscale correction means for performing an ink dot grayscale correction according to density difference data representing a density difference between an actual density of an ink dot formed on the print medium and an ideal density of the dot;

deviation correction means for performing a dot deviation correction based on deviation data representing an amount of deviation, or a difference, between an actual landing position of an ink dot formed on the print medium by the ink droplet ejected from each nozzle and an ideal landing position of the ink dot; and

control means for controlling the grayscale correction means and the deviation correction means according to at least the density difference and the amount of deviation,

wherein the amount of deviation is an amount which is obtained according to a result of measuring a landing state of each of the dots formed by the ink droplets ejected from nozzles of the print head onto the print medium by measuring the amount of deviation between the ideal landing position of the ink droplet ejected from each of the nozzles of the print head onto the print medium and the actual landing position of the ink droplet ejected from each of the nozzles of the print head onto the print medium, and

the deviation correction means performs the dot deviation correction by obtaining a dot area, present within a target area, of the dot formed by an ink droplet ejected from a nozzle corresponding to a predetermined position of the dot and a dot area, present within the target area, of the dot formed by an ink droplet ejected from another nozzle, based on an amount of deviation corresponding to each of the plurality of nozzles.

14.   (Original) An ink jet printing apparatus according to claim 12 or 13, wherein, when the amount of deviation of an ink dot of interest is found to be greater than a predetermined value, the control means causes the deviation correction means to execute the dot deviation correction.

15.   (Previously Presented) An ink jet printing apparatus according to claim 14, wherein the deviation correction means corrects an ink ejection condition of at least one influencing nozzle that adversely affects an ink dot of interest in landing on the ideal landing position.

16.   (Previously Presented) An ink jet printing apparatus according to claim 15, wherein the at least one influencing nozzle includes at least one of a nozzle for ejecting an ink droplet to form the ink dot of interest and adjoining nozzles.

17.   (Original) An ink jet printing apparatus according to claim 14, wherein, when the amount of deviation of the ink dot of interest exceeds 10% of a nozzle pitch, the control means causes the deviation correction means to execute the dot deviation correction.

18.　(Original)　An ink jet printing apparatus according to claim 14, wherein, when the amount of deviation of the ink dot of interest exceeds 25% of a nozzle pitch, the control means causes the deviation correction means to execute the dot deviation correction.

19.　(Original)　An ink jet printing apparatus according to claim 13, wherein the grayscale correction means corrects, based on the density data, an ink ejection condition of a nozzle corresponding to the density data.

20.　(Previously Presented)　An ink jet printing apparatus according to claim 12 or 13, wherein the deviation correction means increases or decreases a volume of an ink droplet ejected from an influencing nozzle according to the amount of deviation, the influencing nozzle being a nozzle that adversely affects an ink dot of interest in landing on the ideal landing position.

21.　(Original)　An ink jet printing apparatus according to claim 13, wherein the grayscale correction means increases or decreases a volume of ink droplet ejected from the nozzle according to a magnitude of the density difference.

22.   (Previously Presented) An ink jet printing apparatus according to claim 13, wherein the control means controls the deviation correction means and/or the grayscale correction means according to nozzle information representing at least one ejection characteristic of each nozzle, the at least one ejection characteristic including at least one of an ink ejection enable/disable decision for each nozzle and a size and/or shape of an ink dot.

23.   (Currently Amended)   An ink jet printing method which forms an image on a print medium by moving a print head having an array of nozzles and the print medium relative to each other and at the same time ejecting ink droplets from the nozzles according to print data of the image to be printed, the ink jet printing method comprising:

a deviation correction step for performing a dot deviation correction based on deviation data representing an amount of deviation, or a difference, between an actual landing position of an ink dot formed on the print medium by the ink droplet ejected from each nozzle and an ideal landing position of the ink dot; and

a control step for selectively causing the deviation correction step to execute the dot deviation correction according to the amount of deviation,

wherein the amount of deviation is an amount which is obtained according to a result of measuring a landing state of each of the dots formed by the ink droplets ejected from nozzles of the print head onto the print medium by measuring the amount of deviation between the ideal landing position of the ink droplet ejected from each of the

nozzles of the print head onto the print medium and the actual landing position of the ink droplet ejected from each of the nozzles of the print head onto the print medium, and

the deviation correction step performs the dot deviation correction by obtaining a dot area, present within a target area, of the dot formed by an ink droplet ejected from a nozzle corresponding to a predetermined position of the dot and a dot area, present within the target area, of the dot formed by an ink droplet ejected from another nozzle, based on an amount of deviation corresponding to each of the plurality of nozzles.

24.   (Currently Amended)   An ink jet printing method which forms an image on a print medium by moving a print head having an array of nozzles and the print medium relative to each other and at the same time ejecting ink droplets from the nozzles according to print data of the image to be printed, the ink jet printing method comprising:

a grayscale correction step for performing an ink dot grayscale correction according to density difference data representing a density difference between an actual density of an ink dot formed on the print medium and an ideal density of the dot;

a deviation correction step for performing a dot deviation correction based on deviation data representing an amount of deviation, or a difference, between an actual landing position of an ink dot formed on the print medium by the ink droplet ejected from each nozzle and an ideal landing position of the ink dot; and

a control step for controlling the grayscale correction step and the deviation

correction step according to at least the density difference and the amount of deviation,

wherein the amount of deviation is an amount which is obtained according

to a result of measuring a landing state of each of the dots formed by the ink droplets

ejected from nozzles of the print head onto the print medium by measuring the amount of

deviation between the ideal landing position of the ink droplet ejected from each of the

nozzles of the print head onto the print medium and the actual landing position of the ink

droplet ejected from each of the nozzles of the print head onto the print medium, and

the deviation correction step performs the dot deviation correction by

obtaining a dot area, present within a target area, of the dot formed by an ink droplet

ejected from a nozzle corresponding to a predetermined position of the dot and a dot area,

present within the target area, of the dot formed by an ink droplet ejected from another

nozzle, based on an amount of deviation corresponding to each of the plurality of nozzles.